

## **Sex Ratios, Single Motherhood, and Gendered Structural Relations: Examining Female-Headed Families Across Racial-Ethnic Populations**

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### **Abstract:**

Sex ratio research often ignores how structural inequalities influence sex ratio effects. Employing decomposition analysis and using standardized U.S. Census tract data from 1970 to 2000, this research investigates how adult sex ratio effects predict the proportion of single parenting women among White, Black, and Hispanic/Latino populations, examining both main and conditional effects of sex ratios on female-headed families. Analyses reveal that main sex ratio effects consistently predict the proportion of single mothers across all racial-ethnic groups, but the conditional effect of gender-distributed labor force participation differentially influences sex ratio effects across race-ethnicities. Specifically, relative labor force participation consistently weakens the sex ratio effects on female headship among Whites. However, the relative female employment alters sex ratio effects among Blacks only when examining the same area over time, and it does not alter sex ratio effects among Hispanic/Latino populations. Findings underscore the importance of understanding family as a sociopolitical phenomenon.

**Keywords:** Motherhood | Sex ratios | Gender | Structural relations | Structural inequities | Race | Ethnicity

### **Article:**

Single motherhood has increased substantially in the last several decades, and the rise of single motherhood is notable across all racial-ethnic populations (Wang, Parker, and Taylor 2013). Yet, sociological research has historically focused on explaining single motherhood among black populations. Studies often cite sex ratios imbalances or unevenness in the relative number of men and women as the primary reason for black female headship. While informative, this research often conceptualizes (black) single motherhood as “nontraditional” and pathological and rarely questions if sex ratio effects depend on pervasive structural inequalities. In short, by focusing on sex ratios, a demographic predictor, as the fundamental cause of single motherhood, the structural relations in which these sex ratio effects take place is overlooked.

This ignorance of structural gender inequalities is also apparent in other recent discussions about imbalanced sex ratios. Contemporary inquiries in the United States often center on explaining dating and sex practices among young adults, arguing that areas with more women than men are marked with higher sexual activity among women and less “traditional” courting behaviors (e.g., Regnerus 2012; Uecker and Regnerus 2010; also see Eligon 2013; Epstein 2012). Although these discussions seem progressive, questions about sex ratio effects on parenthood—a topic that may seem less provocative—remain unanswered. The present research seeks to remedy weaknesses in the existing literature. By conceptualizing single motherhood as a gendered and raced life event, I argue that (1) sex ratio effects on female headship must be examined across *various* racial-ethnic groups and (2) these sex ratio effects must be understood as operating in accordance to broader structural patterns, which have historically been male dominant.

Guttentag and Secord’s (1983) sex ratio thesis provides a useful lens by which to examine patterns of single motherhood. Their theory seeks to explain variations in the relative status, behavior, and treatment of men and women by combining elements of demography, social exchange, and macro-structural disparity. Although sex ratios are hypothesized to influence opportunities to enter sexual relationships, sex ratio effects are understood as structured, in that they occur under institutionalized arrangements that have historically favored men. Notwithstanding this historical disparity, the theory posits that sex ratio effects may be attenuated as women collectively gain more equitable access to structural resources.

This study provides an empirical analysis of this sex ratio thesis. Using geographically standardized U.S. Census data, I investigate across-neighborhood and within-neighborhood variations of adult sex ratio effects on the proportion of female-headed families among white, black, and Hispanic/Latino populations. I begin by separately assessing sex ratio effects on single motherhood across each race-ethnicity. Next, I examine whether race-ethnic-specific sex ratio effects are contingent on gendered structural relations (measured by gender-distributed labor market participation).

### **The Sex Ratio Thesis**

The sex ratio thesis was developed to explain gendered outcomes by emphasizing the implications of imbalanced sex ratios among “suitable” partners at “marriageable and child-bearing” ages. To derive explanations, the theory pulls from demography, social exchange, and macro-structural inequality literature. It is expected that the distributions of dyadic and structural power relations operate as mechanisms that link sex ratios to gendered outcomes (Guttentag and Secord 1983).

### **Dyadic Relations**

Guttentag and Secord argued that imbalanced sex ratios influence dyadic power in interpersonal male–female relationships. Relying on a social exchange framework (Blau 1964; Homans 1958), they posit that individuals enter relationships with differential degrees of power and (in)dependence, which are largely determined by whether one is among the numerical majority or numerical minority sex category (i.e., male or female group). In practical terms, relationship dependency is heavily influenced by the availability of possible alternative relationships. The

partner with fewer options for alternative relationships (i.e., heterosexual men in high sex ratio societies and heterosexual women in low sex ratio societies) will have less interpersonal power and be inclined to enter into or remain in relationships, even if they are materially and psychologically costly. Thus, in an area marked with a high sex ratio where men outnumber women, women who are dissatisfied with their current relationships have more dyadic power and are in a better position to negotiate within the existing relationship, or if negotiation is unsuccessful, they have more opportunities to sever the relationship and seek an alternative relationship. Here, men have less dyadic power and are more interpersonally dependent on women. Conversely, in low sex ratio areas, women outnumber men, rendering men more dyadically powerful and putting them in a better position to negotiate within an existing relationship or seek an alternative “opposite-sex” partnership. In either case, the sex category that is the numerical minority has more dyadic power than the more populous sex category.<sup>1</sup>

### **Structural Relations**

The logic of the sex ratio theory suggests that the numerical minority sex group will have superior dyadic or interpersonal power, but the theory implies that, other things being equal, the more populous sex category can organize itself socially and politically to help avoid some of the negative consequences of dyadic weakness. For example, if men outnumber women, men may be in a position to exercise sociopolitical power, which can limit how females negotiate and exit existing relationships and enter alternative relationships. For instance, men may collectively define women who are unattached to men as morally deficient or limit women’s access to financial resources so that they are economically dependent on men. Similarly, when women outnumber men, their dominant numbers should, again, other things being equal, enable them to organize politically to protect themselves from men’s superior dyadic and interpersonal power. In this circumstance, women would likewise use their sociopolitical power to make it precarious for men to leave existing relationships or limit men’s access to financial resources to make them economically dependent on women. According to Guttentag and Secord (1983), however, other things are *not* equal, though they could become more equal. In other words, men and women in a similar dyadic power position may experience similar consequences, but the actual outcomes may differ because dyadic power is filtered through structural power relations, which have historically favored men.

Structural power is defined as the relative amount of control that men and women, as a group, have over social, political, and economic resources (Guttentag and Secord 1983:26). When a sex category holds disproportionate amounts of structural power, gendered outcomes, favorable to the dominant power holders, emerge because the more structurally powerful group has the ability to collectively influence resource access and accumulation and shape moral values—including sex-specific expectations, valuations, customs, and practices—even when the dominant category is not in the numerical majority. Since men have nearly exclusively held structural power within all societies, women’s dyadic control has been substantially limited, even in high sex ratio areas, where dyadic power is in women’s favor. This historical imbalance of male structural power explains why women have been subjected to male definitions of morality and social convention across all sex ratio contexts.

## **Sex Ratios and Family Structure**

Research investigating sex ratio effects on female headship in the United States generally conclude that sex ratios are an important factor in predicting patterns of family formation and child-rearing conditions. For example, Rolison (1992) revealed a significantly greater proportion of female-headed families among black populations in cities with a relative scarcity of adult men. Examining metropolitan areas and nonmetropolitan Louisiana counties, Fossett and Kiecolt (1990) concluded a strong association exists between low adult sex ratio areas and single motherhood among black populations (also see Fossett and Kiecolt 1993). In an early study emphasizing different pathways to female-headed families, Darity and Myers (1984) concluded that increasing female headship among black populations was largely caused by nonmarital fertility due to the scarcity of available male partners.

Despite these consistent findings, it is notable that sex ratio research on single parenting women in the United States has almost exclusively focused on African American populations (see Billy and Moore [1992] for an exception). Two reasons may explain this focus. First, black men have a higher mortality rate and incarceration rate than men of other races and ethnicities (Pettit and Western 2004; Western 2002), and this has been historically true (Collins 2005; Darity and Myers 1995; Guttentag and Secord 1983). Consequently, black populations in the United States have had a larger, more persistent scarcity of available male partners than other racial-ethnic groups (Bennett, Bloom, and Craig 1989; Davis 1998; Tonry 1995; Western and Wildeman 2009).

Sociological research may have limited attention on black populations as a way to gain insight into the effects of consistently low sex ratios. Second, the relatively high rate of female-headed families among blacks in the United States has been publicized and politicized in ways that deem black single motherhood as deviant and damaging (e.g., Moynihan 1965). Collins (2000) describes these controlling images as justifying political, economic, and ideological oppression and subordination (also see Squires 1994). Sociologists may have focused on studying black populations in an effort to empirically assess claims about racial disparities in family structure.

Regardless of the reasons for centralizing attention on black populations, female headship has increased in all racial-ethnic groups since 1960 (Vespa, Lewis and Kreider 2013; Wang, Parker, and Taylor 2013). In fact, single motherhood headship among whites has risen from about 6 percent in 1960 to more than 18 percent in 1998 (U.S. Census Bureau 1999). Given the dearth of knowledge about sex ratio effects on family structure across racial-ethnic categories, questions remain about how sex ratio effects vary by race-ethnicity.

## **Sex Ratios and Gendered Structural Relations**

Extant sex ratio research often omits measures of gender-distributed structural power as a potential moderator. Researchers assume (either implicitly or explicitly) that men collectively hold disproportionate structural power, which is used to arrange heterosexual relationships in a way that is most favorable to them. For example, the expected negative relationship between sex ratios and female headship is typically interpreted as suggesting that low sex ratio areas (where women outnumber men) produce weakened male–female relationships because men hold

collective structural power *and*—due to their numerical scarcity—interpersonal power (Guttentag and Secord 1983). Providing some support for men’s weaker relational commitment in areas with a relative surplus of women (a low sex ratio), Warner et al. (2011) concluded that the number of dating partners and cheating among men is higher in areas with a relative abundance of women, and women perceive men as being less committed to monogamous relationships in areas where they outnumber men. Uecker and Regnerus (2010) also revealed that female college students report decreased levels of commitment among men and increased distrust of men in contexts where potential male partners are scarce.

The omission of gender structure indicators in sex ratio research is puzzling. While researchers acknowledge gender-distributed structural power as variable (Burns, Schlozman, and Verba 2001; Guttentag and Secord 1983; South 1988; Thistle 2006), men, as a group, have nearly exclusively held structural power within all societies (Guttentag and Secord 1983; Johnson 2004; Kimmel 1994; Ridgeway and Smith-Lovin 1999). A consistent, male-dominant gender order may explain why women are subjected to male definitions of morality and social convention, limiting women’s ability to enter, negotiate, and exit relationships across all sex ratio contexts. Indeed, women’s independence from men is continually stigmatized. Women who are unmarried are commonly portrayed as egotistical, lonely, and/or sad (Sharpe and Ganong 2011), and single mothers are perceived as misguided or morally deficient (Hays 2004). This persistent stigmatization helps reveal motherhood as an outcome shaped by gendered structural relations.

## **Hypotheses**

The dyadic power component of the sex ratio thesis suggests that the sex ratio of persons of childbearing ages will directly influence the proportion of female-headed families. To examine this hypothesis, I estimate a main effects model measuring sex ratio effects on female headship. This main sex ratio effect on female headship is examined under the assumption that males collectively hold disproportionate structural power and use that structural power to persuade women to mother in “correct” ways. Thus, I hypothesize that sex ratios will be negatively related to the proportion of female-headed families.

H1: When males hold a disproportionate amount of structural power, the sex ratio of the population of childbearing age and the proportion of female-headed families are inversely related. For example, low sex ratio areas, where women are more numerous, will have higher proportions of female-headed families.

It is important, however, to appreciate the potential conditional effect that gendered structural power may have on the sex ratio–female headship relationship. In statistical terms, I hypothesize an interaction between sex ratios and female structural power in their effects on single motherhood. Although prior research largely neglects this potential contingency, sex ratio effects may be attenuated as gender-distributed structural power becomes more equal (Dollar 2015; Guttentag and Secord 1983; Heer and Grossbard-Shechtman 1981). Scholars have previously argued that gendered structural power is fundamentally revealed in the relative measure of female-to-male labor market participation because labor force participation allows for the growth in economic independence (Becker 1981; Blumberg 1979; Chafetz 1990). Supporting this

expectation, South (1988) found that “traditional” women’s roles and positions, which are often preserved by men’s disproportionate structural power even in areas where women outnumber men, are significantly weaker in countries where women’s economic power is high (measured by paid labor force participation). Accordingly, I hypothesize that the effects of sex ratios are expected to be weaker when there is a relative balance of labor market participation.

H2: Sex ratio effects on female headship are contingent on the relative degree of male–female structural power. Hence, the negative sex ratio–female headship relationship will be weaker in areas where women have a relatively high amount of structural power.

Although the theory proposes the same directional relationships among all racial-ethnic categories, I examine these hypotheses using racial-ethnic specific models since partnering and family formation remain largely intraracial.

## **Methods**

### **Data and Measures**

Data for the present research come from the Neighborhood Change Database (NCDB). The NCDB compiles tract-level information gathered by the U.S. Census Bureau in 1970, 1980, 1990, and 2000. A census tract is the Census Bureau’s statistical equivalent of a large neighborhood. Since prior studies suggest that research on sex ratios and family formation benefits from localized analysis (e.g., Fossett and Kiecolt 1991; Goldman, Westoff, and Hammerslough 1984; also see Warner et al. 2011) and tract-level data provides information about relatively proximate surroundings, tract-level analysis is well suited for the present study.<sup>2</sup>

The NCDB compiles data from *all* U.S. census tracts and includes measures on general population characteristics, age distributions, marriage and family structure, and employment. The primary advantage of the NCDB is its standardization of geographic areas. Although tracts are designed to be relatively stable, boundary changes are not rare events. Between each decennial census, boundaries are often redrawn to account for population density changes (i.e., large rates of out-migration or rapid population growth). In fact, about 80 percent of tracts changed boundaries between 1970 and 2000 (Tatian 2003). By standardizing the tract boundaries, researchers are able precisely to compare locations over time. In other words, researchers can accurately evaluate changes and trends across various census periods using 2000 boundaries—as though those boundaries had been in place in 1970, 1980, and 1990.<sup>3</sup>

Despite the advantages of using the NCDB, there are limitations to the data. The data contained in the NCDB are not as extensive as the data contained in the full census. Therefore, while decennial censuses include information by particular subgroups (e.g., educational attainment and employment outcomes by sex and race-ethnic identification), this information is not available in NCDB.

### **Dependent Variable: Female-Headed Families**

The U.S. Census Bureau defines female-headed families as families that are headed by a female with no spouse present and with a child younger than 18. Respondents are asked to report on

their household structure and living arrangements. The NCDB provides race-specific information on female-headed families at all four time points (1970-2000) and ethnic-specific information in 1980, 1990, and 2000. For the present analysis, the proportion of female-headed families is calculated by dividing the number of race-ethnic-specific female-headed families by the total number of families with children (including race-ethnic-specific married-couple families, male-headed families, and female-headed families), and multiplying by 100. Thus, this variable construction is consistent with notions of single mothers, single parenting women, single female families, and female headship.

### **Independent Variable: Sex Ratios**

Because the current study is interested in sex ratio effects on family structure, I calculate sex ratios that recognize the availability of “suitable” partners at “child-bearing ages.” Patterns of family formation follow certain trends, especially as related to age and race. Although persons overwhelmingly seek partners who are about the same age (Atkinson and Glass 1985; Vera, Berardo, and Berardo 1985), prior research suggests that using broad adult age ranges is preferable in order to allow for age variation in partnering (e.g., Fossett and Kiecolt 1991; South 1991). In addition, because the United States is still marked by continued endogamy in family formation (Lichter 2012; Passel, Wang, and Taylor 2010; Qian and Lichter 2011; Wang 2012), calculating sex ratios by racial-ethnic subgroups will yield more accurate results.

The NCDB provides disaggregated racial-ethnic information for populations of persons who are 15 to 59 years of age; thus, I use this age range to calculate sex ratios by race (white and black) and ethnicity (Hispanic/Latino). I compute race-ethnic-specific sex ratios by dividing the number of males by the number of females in each race-ethnic category and multiplying by 100.<sup>4</sup> The resulting number indicates the number of men per 100 women. Thus, a sex ratio of 100 denotes a balanced sex ratio, meaning that the area has an equal number of men and women. Numbers exceeding 100 indicate more men than women (high sex ratio), while numbers below 100 indicate more women than men (low sex ratio).

### **Conditional Variable: Gender-Distributed Labor Participation**

Structural power is conceptualized to include many facets of social life, but economic power is especially important. Although labor force participation may not lead directly to comprehensive gains in structural power relations (Mason 1986), participation in paid labor is an essential part of attaining such power because it allows some financial independence (Blumberg 1979; Guttentag and Secord 1983). Moreover, economic means can be used to obtain political, legal, and cultural power. Consequently, labor force participation, even when females are subordinate to males in pay and authority, is expected to promote economic power of women as a whole. In fact, extant research indicates that women’s financial independence through paid work has been used to resist “traditional” notions of motherhood (Becker 1981; Chafetz 1990; South 1988).

The NCDB contains data on labor force participation by sex and racial-ethnic groups in 1980, 1990, and 2000. The U.S. Census defines labor force participation as persons who are 16 and older and currently working in the paid labor market or actively enlisted in the armed forces. Because gendered structural power is inherently relational (Blumberg 1979; Chafetz 1984;

Oppenheimer 1994), I compute a race-ethnic-specific measure of labor force participation that captures women's labor force participation relative to men's. I operationalize relative female–male labor force participation by dividing the relative proportion of women who are employed in the civilian labor force and armed forces by the relative proportion of men who are similarly employed. This measure provides a race-ethnic-specific ratio of female-to-male labor force participation whereby a score of 1 denotes an equal number of women and men working, a score below 1 denotes more men than women working, and a score above 1 denotes more women than men.<sup>5</sup>

## Control Variables

The present analysis includes several controls. To account for known regional effects on marriage, fertility, and work patterns (e.g., Goldscheider and Waite 1986; Lichter, Anderson, and Hayward 1995; Lichter et al. 1991; Lichter et al. 1992), I include a series of dummy-scored regional measures. Consistent with prior work in this area, South serves as the reference category. I also include a measure for proportion of the population that is foreign born, since extant research identifies differences in foreign-born populations' patterns of fertility and family structure. Because persons who live in group quarters are limited in their ability to participate in childrearing and labor market activities (Collins 2005; Fossett and Kiecolt 1991), I control for the proportion of population living in group quarters, which includes persons living in correctional facilities and long-term medical facilities. Finally, models include a measure for total tract population size (total population divided by 1,000).

## Analytic Strategy

The sex ratio thesis is concerned about how fluctuations in sex ratios influence family structure across place *and* over time, and prior studies conclude significant across-unit *and* time period differences in family formation, so separately estimating these effects is important. Decomposition panel analysis (also known as hybrid panel analysis) is, therefore, suitable for the present analysis. Decomposition models resolve issues common to fixed effects and random effects models by providing the benefits associated with both forms of modeling (Allison 2005).<sup>6</sup> This analytic technique decomposes between-unit and within-unit variation by estimating their respective effects in a single model (Allison 2005; Ousey and Wilcox 2007; Phillips 2006). The between-unit components produce estimates of sex ratio effects across place (tracts), and the within-unit estimates assess the sex ratio effects of a particular tract over the specific time lag, which is the general purpose of longitudinal studies (Zhou 2011). The decomposition model takes the following form:

$$Y_{jt} = \alpha + \beta X_j + \eta(x_{jt} - X_j) + v_j + \epsilon_{jt}, (1)$$

where  $Y_{jt}$  represents the dependent variable for unit  $j$  and year  $t$ ,  $\alpha$  indicates the intercept or constant,  $\beta$  represents the parameter estimate of between-unit mean differences,  $X_j$ ,  $\eta$  signifies the effects of within-unit differences,  $x_{jt}$  represents the predictor for region  $j$  at time  $t$ ,  $v_j$ , represents the unit-specific error term, and  $\epsilon_{jt}$  signifies the model error term, which controls for unique-unit-specific characteristics as it contains random variation within units over time. Using



the “xtreg” command in Stata, the between- and within-unit components are added in random-intercept regression models.

I estimate models separately by race-ethnicity, and given the large sample size, I use robust standard errors. To control for year effects, I include dummy variables for the years 1970, 1980, and 1990 with the year 2000 serving as my reference category. Because of the large number of cases, I conducted a supplemental analysis examining a 20 percent and a 2 percent random sample of the full sample. These subsample analyses revealed overwhelmingly similar patterns of statistical significance and identical patterns of directional association among the indicators.

## Results

### Descriptives

Table 1 presents descriptive statistics for all study variables. I present the descriptive data cross-sectionally to aid in data comparisons by decennial census year. As shown in Table 1, the sex ratios differ by racial-ethnic group. White populations show a steady increase over the four decennial census time points, suggesting that men are becoming more numerous than women. Of interest, the data reveal higher sex ratios and more striking temporal mean differences among black and Latino sex ratios as compared to whites.<sup>7</sup>

Table 1. Descriptive Statistics for Tract-Level Data.

Variable	1970	1980	1990	2000
White sex ratio 15-59	97.88 [36.07]	100.95 [34.04]	103.00 [35.43]	104.38 [38.41]
Black sex ratio 15-59	106.83 [87.80]	111 [83.00]	109.33 [93.80]	111.29 [97.46]
Hispanic/Latino sex ratio 15-59	—	114.50 [85.22]	113.66 [101.82]	121.39 [99.66]
White female-headed families	9.30 [2.36]	14.08 [1.95]	15.25 [2.19]	17.92 [2.14]
Black female-headed families	21.84 [24.11]	32.54 [28.17]	36.46 [31.39]	40.06 [31.79]
Hispanic/Latino female-headed families	—	18.01 [25.06]	19.14 [27.30]	21.01 [27.07]
White female–male labor force participation	—	.68 [1.63]	.76 [1.44]	.82 [2.10]
Black female–male labor force participation	—	.92 [304]	1.07 [9.89]	1.16 [7.76]
Hispanic/Latino female-male labor force participation	—	.69 [.53]	.38 [3.80]	.87 [7.05]
Population size (by 1,000s)	2.26 [2.24]	2.76 [2.10]	3.80 [1.76]	4.30 [2.14]
Foreign born	.04 [.06]	.06 [.06]	.07 [.11]	.10 [.13]
Group quarters	.02 [.07]	.02 [.09]	.03 [.09]	.03 [.10]
Northeast	.202 [.40]	—	—	—
Midwest	.252 [.47]	—	—	—
West	.212 [.40]	—	—	—

South	.334 [47]	—	—	—
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Note. N = 65,424. Values are mean, with standard deviation in brackets.

Consistent with prior research (e.g., Coontz 1997), data show that the proportion of female-headed families has increased considerably over time. While this trend is consistent across race-ethnicity, differences are apparent. Specifically, the proportion of female-headed families among black populations has been markedly higher than for whites and Latinos.

Generally speaking, female-to-male labor force participation ratio moves closer to 1 over time, suggesting that women are increasingly participating in the labor market, thus increasing their ability to attain structural power. Although the mean ratio never reaches full parity among white and Latino populations, the ratio exceeds 1 among blacks in 1990 and 2000. This mean value indicates that the average area contains a relatively greater number of black women working in the labor force as compared to black men. This finding supports extant arguments that black women have become more commonly employed than black men since the 1980 deindustrialization transitions (e.g., Collins 2000; St. Jean and Feagin 1998; Wilson 1987). It is also interesting to note the extremely high gap between labor force participation among Latino women and men in 1990. As shown in Table 1, Latinas were nearly 3 times less likely to work than Latinos. This finding signifies differential work patterns among Latino immigrants at this time point. By 2000, however, the relative gap in female–male labor force participation had considerably narrowed, which may reflect several factors, including changes in migration patterns whereby women in-migrate to the United States looking for work (Glenn 2002; Hochschild 2002), work assimilation and financial constraints that require Latinas living in the United States to enter the paid labor force (Corcoran, Heflin, and Reyes 1999) and/or an increase in labor force participation among Latinas following the Immigration Reform and Control Act, which granted millions of current U.S. residents legal status.

### Main Sex Ratio Effects

Table 2 presents results from the main effect decomposition analyses. As shown in Models 1, 2 and 3 of Table 2, Hypothesis 1 is supported across all racial-ethnic populations. Sex ratios are negatively related to the proportion of female-headed families across tracts and over time within the same tracts, net other time varying and time invariant factors in the model. In addition, each of these relationships is statistically significant.<sup>8</sup>

Table 2. Tract-level Decomposition Models.

	Model 1 White Female- Headed Families 1970–2000	Model 2 Black Female- Headed Families 1970–2000	Model 3 Hispanic/Latino Female-Headed Families 1980–2000
Between-tract Race-specific sex ratio	-.024*	-.095*	-.059*
	[.003]	[.002]	[.001]

	(-6.46)	(-43.22)	(-36.67)
Population size	.136*	-.364*	-.569*
	[.026]	[.061]	[.050]
	(5.19)	(-5.94)	(-11.25)
Group quarters	13.05*	36.33*	27.56*
	[1.10]	[2.07]	[1.92]
	(11.85)	(17.47)	(14.29)
Foreign born	19.31*	20.67*	3.75*
	[.463]	[1.26]	[.660]
	(41.68)	(16.29)	(5.68)
Within-tract Race-specific sex ratio	-.049*	-.079*	-.061*
	[.003]	[.001]	[.001]
	(-14.50)	(-42.64)	(-40.97)
Population size	-.554*	-1.45*	-.346*
	[.023]	[.055]	[.068]
	(-23.90)	(-26.19)	(-5.05)
Group quarters	13.51*	31.39*	17.95*
	(1.29)	[2.64]	[3.19]
	(10.44)	(11.86)	(5.62)
Foreign born	-7.87*	-7.56*	-18.14*
	[.564]	[1.51]	[1.39]
	(-13.94)	(-4.98)	(-13.04)
Time invariant Northeast	.272*	-4.41*	4.71*
	[.137]	[.374]	[.339]
	(1.99)	(-11.78)	(13.91)
Midwest	-.810*	-3.42*	-2.44*
	[.105]	[.294]	[.280]
	(-7.69)	(11.62)	(-8.73)
West	-.238*	-6.95*	-3.63*
	[.114]	[.374]	[.267]
	(-2.09)	(-18.60)	(-13.60)
1970	-11.62*	-23.94*	—
	[.091]	[.243]	[.245]
	(-126.95)	(-98.14)	
1980	-5.37*	-11.52*	-5.40*
	[.076]	[.215]	[.245]
	(-70.46)	(-53.53)	(-22.04)
1990	-3.15*	-4.76*	-2.30*
	[.058]	[.182]	[.182]
	(-54.23)	(-26.12)	(-12.66)
Constant	20.25*	55.59*	32.10*
	[.396]	[.432]	[.411]

	(51.03)	(128.67)	(78.05)
R <sup>2</sup> (between-tract)	.017	.084	.060
R <sup>2</sup> (within-tract)	.119	.164	.051
R <sup>2</sup> (overall)	.090	.122	.063
N	214,238	127,792	117,763

Note. Unstandardized regression coefficients, with robust standard error in brackets and z statistic in parentheses. \*p < .05.

As a reminder, the between-unit effects estimate sex ratio effects across tracts, so the results indicate that areas with lower sex ratios have higher proportions of female-headed families. Within-unit effects estimate change over time within the same tract; hence, the results suggest that decreases in sex ratios within the same tract over time result in increases in the proportion of female-headed families. For example, Model 1 of Table 2 illustrates that when comparing across neighborhoods, for every one point decrease in white sex ratios (an additional white woman per white man), female headship among whites increases by approximately .024 percent. This relationship is statistically significant; differences in sex ratios among whites appear to account for differences in white female-headed families across neighborhoods. The statistically significant, inverse relationship also explains longitudinal variations. Specifically, when examining variations in sex ratios within the same neighborhood over time (within-unit changes), for each single-point decrease in white sex ratios, the tract experiences a .049 percent increase in white female headship. The remaining results illustrated in Table 2 indicate that this negative, statistically significant relationship is consistent across all race-ethnic groups.

### Conditional Effects of Gendered Labor Force Participation on Sex Ratio Effects

Hypothesis 2 suggests that relative structural power may condition sex ratio effects on female-headed families. I investigate the presence of a conditional effect by computing a product term of sex ratios and relative labor force participation, which was entered into models predicting female-headed family structure. Table 3 displays the results of these analyses. Although the control variables are not shown in the table, the following controls were included in the analysis: population size, proportion living in group quarters, proportion of population who is foreign born, region, and decennial year. Each control variable maintains its substantive relationship with female headship across the race-ethnic specific models.

Table 3. Decomposition Models with Interaction Term.

	Model 1 White Female- Headed Families	Model 2 Black Female-Headed Families	Model 3 Hispanic/Latino Female-Headed Families
Between-tract Race-Specific Sex Ratio × Labor Force Participation	.018*	.0007	-.0004
	[.003]	[.003]	[.002]
	(5.10)	(.25)	(-.17)

Race-specific sex ratio	-.044*	-.096*	-.047*
	[.007]	[.004]	[.003]
	(-5.96)	(-29.79)	(-12.98)
Labor force participation	5.17*	3.15*	2.13*
	[1.35]	[.325]	[.210]
	(3.83)	(9.71)	(10.14)
Within-tract Race-Specific Sex Ratio × Labor Force Participation	.006**	-.031*	.005
	[.004]	[.007]	[.007]
	(1.58)	(-4.55)	(.79)
Race-specific sex ratio	-.053*	-.079*	-.054*
	[.004]	[.002]	[.001]
	(-11.34)	(-35.85)	(-37.61)
Labor force participation	5.09*	3.09*	2.07*
	[1.00]	[.523]	[.219]
	(3.63)	(9.15)	(9.48)
Constant	16.13*	51.92*	25.64*
	[1.00]	[.523]	[.415]
	(16.01)	(99.25)	(61.79)
R <sup>2</sup> (between-tract)	.038	.078	.051
R <sup>2</sup> (within-tract)	.072	.183	.046
R <sup>2</sup> (overall)	.052	.094	.058

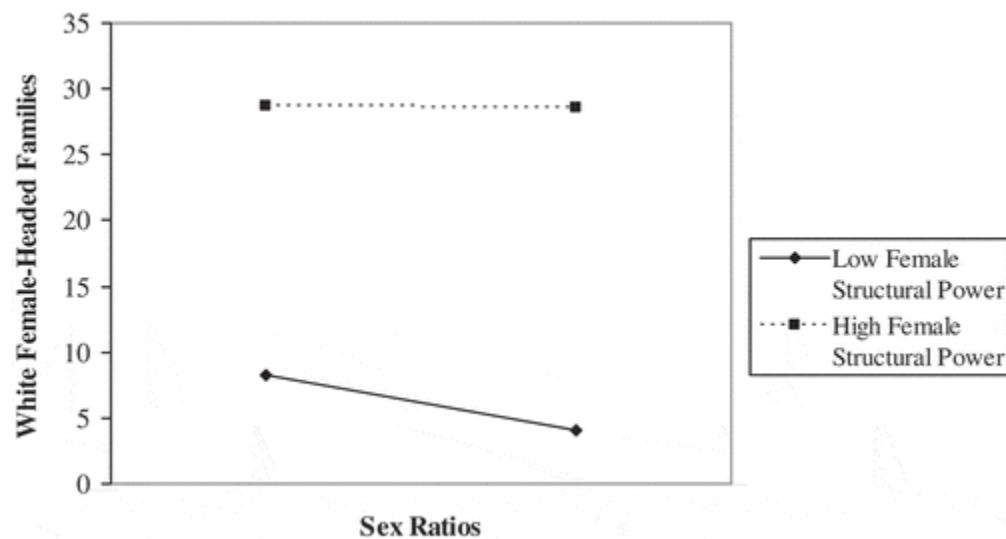
Note. Covariates included in the model but not shown here are population size, proportion of the population living in group quarters, proportion of population who is foreign born, region, and decennial year. Unstandardized regression coefficients, with robust standard error in brackets and z statistic in parentheses. \* $p < .05$ . \*\* $p < .10$ .

As revealed in Table 3, the interaction term is sometimes statistically significant in predicting race-ethnic-specific outcomes. Specifically, the results indicate that the interaction term is statistically significant in predicting between-neighborhood differences among white female-headed families and approaches statistical significance in explaining within-tract, over time changes among white female-headed families (Model 1, Table 3) and in predicting within-tract, over time changes among black female-headed families (Model 2, Table 3).

The between-unit analysis presented in Model 1 of Table 3 reveals a positive, statistically significant interaction term, suggesting that the negative relationship between sex ratios and female-headed families among white populations weakens as female structural power strengthens ( $B = .018, p < .05$ ). Figure 1 illustrates this effect. For the purposes of creating this figure, I define areas with low female structural power as those areas with a relative labor

participation ratio that falls below the mean and areas with high female structural power as areas with a ratio at or above the mean. I hypothesize that the negative sex ratio–female headship relationship would be less prominent in areas where females have greater structural power because women have the opportunity to forego partnering or other social arrangements that bind women to men. The results show that, as expected, sex ratios are consistently and negatively related to female-headed families among whites across all areas, but by comparing the pitch of the regression lines, it is apparent that the relationship is significantly weaker in areas where white women have relatively high amounts of structural power. In other words, the regression line is steeper in tracts where women have a relatively low amount of structural power as compared to tracts where women have a relatively high amount of structural power. Sex ratio effects are indeed less influential in predicting the proportion of single mother families in areas where women have greater socioeconomic independence.

Figure 1. Tract-level sex ratio effects on rates of white female-headed families by relative structural power, 1980–2000.



When assessing the data longitudinally or within the same tract over time, the interaction term operates in the theoretically expected direction among white populations, but it only approaches statistical significance (Model 1, Table 3). Thus, as theorized, within-neighborhood increases in female structural power weaken the sex ratio effect on white female-headed families within that neighborhood, but the contingent effect is not statistically significant at the .05 level.

Of interest, the expected effects are not apparent among racial-ethnic minority populations. Among black populations, between-tract analysis reveals that female structural power does not significantly alter sex ratio effects on the proportion of female-headed families, although the direction of the relationship is consistent with the theory (Model 2, Table 3). Yet, longitudinal analysis investigating within-tract changes over time shows a statistically significant interaction term operating in the opposite direction as expected (Model 2, Table 3). The results indicate that gains in female structural power among black populations within the same neighborhood over time *strengthen* the negative relationship between sex ratios and black female-headed families.

Among Latino populations, the moderation effect receives no support. These contrary findings are discussed further in the following section.

## **Summary and Discussion**

Family formation is understood as one of the most valued life experiences in the United States (e.g., Hays 2004; Nelson 2006; Thornton and Young-DeMarco 2001), but the expectations of parenting indicate motherhood as a gendered and raced outcome (Park 2002). The current study reveals that sex ratios have a negative effect on female-headed families across all race-ethnic specific models; hence, as hypothesized, the scarcity of men contributes to increased female headship among white, black, and Latino populations.<sup>9</sup> Of interest, however, the conditional effect of gendered labor market participation differs across race-ethnicity. Female employment relative to male employment consistently weakens sex ratio effects, suggesting that sex ratio effects are contingent on the relative level of female structural power (i.e., gains in female empowerment may minimize or negate the “traditional” gendered effects of sex ratios on family formation). However, this effect is consistently apparent only for white female-headed families. Such an effect occurs among black populations only within the same tract over time, and the conditional effect receives no support among Latino populations.

The inconsistencies may be due to the crude measure of female structural power used in the present analyses. I operationalize female structural power as comparative female–male labor market participation since the data limit my ability to create a more complete measure. Previous studies, however, demonstrate racial-ethnic differences in labor market participation. For example, compared to white women, women of color have been historically engaged in work outside of the household (e.g., Billingsley 1968; Davis 1981; hooks 1984). In fact, the present analysis reveals that since 1980, black women are more likely to be employed than black men, but research demonstrates that women of color are segregated into low-paying jobs and subjected to controlling images that deem their employment as problematic (Brewer 1993; Collins 2000; Hartmann 1976; Hays 2004). Similarly, prior studies note that black and Hispanic women more heavily rely on developing economic and social assisting networks than whites (e.g., Casper and Bianchi 2002; Sarkisian, Gerena and Gerstel 2007; Stack 1974; Tienda and Angel 1982; Tienda and Glass 1985). These extended networks are partly developed because of their greater likelihood to work outside of the home (Collins 2000).

In short, structural relations beyond labor force participation matter. Paid employment is just one dimension of structural power, and while researchers argue that it is a primary component (Becker 1981; Blumberg 1979; Chafetz 1990; Guttentag and Secord 1983; South 1988; Thistle 2006), structural power is a complex phenomenon that should take into account multiple economic, legal, and political factors. Future research would benefit from including additional measures of structural inequalities, including gendered and raced distributions of wealth, educational attainment, occupational prestige, occupational earnings, amount of household labor performed, political involvement and representation, and cultural depictions of “desirable” men and women.<sup>10</sup> In addition, future research should specify the impetus for altering structural relations. For example, measuring the motivations behind women entering the paid labor market could help us clarify the causal ordering between sex ratios, labor force participation, and family

formation. Finally, we need to more critically examine *why* and *how* sex ratios operate. Arguments citing a lack of “appropriate” fathers are often invoked to explain the increase in female headship, especially among racial-ethnic minorities and economically independent women of various social groups. This explanation implies a gender order that depicts the desirability of a particular kind of man—one who is powerful, ambitious, and authoritative. Thus, it justifies and reproduces men’s collective power over women, in general, and in the family more specifically.

Notwithstanding these avenues for future research, the results of this study highlight the importance of acknowledging how demographic factors interact with macro-social relations to influence family life. By continuing to reveal connections between demography, social organization, and social-psychological processes, we will better position ourselves to understand lived experiences.

## Notes

1 The notion of dyadic power is similar to arguments presented in marital search models (e.g., Becker 1981; Grossbard-Shechtman 1993; Oppenheimer 1988). Although the perspectives similarly emphasize the importance of potential “opposite sex” partner availability, Guttentag and Secord’s (1983) theory explicitly links this demographic opportunity to a gendered social structure. In other words, they acknowledged this demographic dimension as occurring in a context of unequal structural relations.

2 In recognizing the increased mobility and growth in technology-based communication, which allow people to participate in activities that may expand the relationship market, I conduct supplemental analyses at the county and state level. The results for the three types of geographic units are substantively the same, so I report only the results from the tract-level analysis.

3 Remapping 1970, 1980, and 1990 data to 2000 tract boundaries was conducted by GeoLytics, Inc., a private research firm, using proprietary data compression and mapping technologies. Standardization procedures began by overlaying the 2000 census tract boundaries on the earlier year boundaries using geographic information system software. This initial layering allowed for visual inspection of changes in tract boundaries. If changes occurred, boundaries were remapped so that they could be standardized. The remapping weights and conversions were based on total population and applied to all variables (see NCBD’s Data Users’ Guide, Appendix J 2003).

4 Because some research indicates that unemployment, especially among males, alters family conditions (Lichter, LeClere, and McLaughlin 1991; Lichter et al. 1992; Lloyd and South 1996; Mare and Winship 1991; Wilson and Neckerman 1986) and attitudinal surveys suggest that women give preference to men who can provide economic security (England and Farkas 1986; South 1991), I computed an alternative sex ratio measure that excluded unemployed men. Models estimating direct sex ratio effects were substantively identical. For parsimony, I present the findings using the more inclusive sex ratio measure.

5 Structural power relations involve more than labor market participation, but the data does not compile other sex-specific occupational measures (i.e., income or job type) or sex-specific



educational indicators even though some of the measures are in the original census. Despite this limitation, economic means are often used to gain access to other macrostructural resources, and the present research goes beyond the majority of sex ratio research on female headship in its measurement of gendered structural relations across racial-ethnic groups.

6 For example, decomposition modeling identifies the parameters of observed time-invariant variables, which is not possible with fixed effect models. Also, decomposition modeling allows correlation among observations within the same unit over time. Such correlation violates the assumption of independent errors required for random effect models. Since I include time-invariant variables in the model and the NCDB contains repeated measures on the same units over time, decomposition panel analysis is preferred.

7 This relatively high average sex ratio over time is due to the age-specific sex ratio calculations. The total national-level sex ratio is low (i.e., falls below 100), but the sex ratio of younger persons is relatively high. For example, the sex ratio for the population 18 years of age and younger is about 106, and this high sex ratio continues until the 30 to 34 age range when women begin to outnumber men slightly (Spraggins 2005). In addition, although much popular and scholarly attention focuses on a declining sex ratio throughout the United States and evidence indicates that the sex ratio decreased from 1920 to 1970, the sex ratio of the overall U.S. population has been increasing slightly since 1980, partly due to disproportionate male migration (Hobbs and Stoops 2002).

8 Because the NCDB contains full population data, statistical inference is not required. However, to remain consistent with standard practice in social science research, I rely on significance testing in assessing support for my hypotheses. I also discuss the relational direction and magnitude apart from significance testing to acknowledge the importance of these effects.

9 These effects could be interpreted as purely mechanistic; however, it is important to acknowledge how sex ratio effects differ across areas with varying female empowerment and across racial-ethnic populations. In addition, prior research on the stigmatization of single mothers and childfree women indicate female independence from males as a gendered and raced phenomenon (e.g., Gillespie 2003; Hays 2004; Park 2002), thus implying socially meaningful effects.

10 Debates about the influence of structure and/or culture are long-standing, but contemporary literature suggests recognizing structure and culture as reflexive.

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